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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/955,043 | 09/19/2001 | Satoshi Kaiho | 016907/1292 | 8502 |

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EXAMINER

PHAM, HAI CHI

| ART UNIT | PAPER NUMBER |
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2861

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/955,043

Applicant(s)

KAIHO, SATOSHI

Examiner

Hai C. Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE & Amendment filed 03/23/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4,7 and 9-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4,7 and 9-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Request For Continued Examination

1. The request filed on 03/23/06 for a Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/955,043 is acceptable and a RCE has been established. An action on the RCE follows.

Allowable Subject Matter

2. The indicated allowability of claims 8-10, the limitations recited in claim 8 being now incorporated into claims 1, 11, 19 and 26, is withdrawn in view of the newly discovered reference to Uzuki (JP 04-249211). Rejections based on the newly cited reference follow.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4, 7 and 9-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uzuki (JP 04-249211) in view of Yamakawa (U.S. 6,243,128).

With regard to claims 11 and 26, Uzuki discloses a scanning optical device comprising a housing (optical box 10), a light emitting section (semiconductor laser 1), which emits a laser beam, a polygon mirror (4) provided in the vicinity of a side in the housing, which includes a plurality of reflection planes along a main scanning direction to deflect the laser beam in the main scanning direction (the polygon mirror 4 being located at a side of the housing as opposed to the laser 1) (Fig. 1), a mirror (reflecting mirror 7) provided in the vicinity of a side in the housing, which reflects the laser beam deflected by the polygon mirror at a predetermined angle to guide the laser beam outside the housing (Fig. 2) and a projection (positioning pin 8) provided on an outer surface of the housing (e.g., bottom surface of the optical box 10) between the polygon mirror and the mirror.

Uzuki further teaches the central axis of the positioning pin (8) passes in the vicinity (i.e., approximate) of the center of the irradiation position (e.g., exposure light spot of the laser beam) on the photosensitive body (20) (see Abstract), but not exactly at the center of the exposure light spot. Therefore, It would have been obvious at the time the invention was made to a person having ordinary skill in the art to position the central axis of the positioning pin to pass through the exposure light spot of the laser beam on the photosensitive body as claimed, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

With regard to claims 4, 19, Uzuki fails to explicitly disclose the developing unit, the transfer unit, and the fixing device.

However, Yamakawa discloses an image forming apparatus comprising an optical box (or housing 16) holding a laser unit (14), a polygon mirror (1) and the scanning lenses (2 and 3), the housing being rotatable around the pin (11a) provided on the housing so as to correct the tilt of the scan line with respect to the longitudinal axis of the photosensitive drum (21). Yamakawa further discloses a developing device (128), a transfer device (130) and a fixing device (138), which are pertinent to any electrophotographic printing device.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the developing device, the transfer device and the fixing device in the optical scanning device of Uzuki since Yamakawa teaches this to be well known in the art for forming a visible toner image in any electrophotographic printing device.

With regard to claims 9-10, 12, 21-22 and 27, although Uzuki teaches using f- θ lenses (50) for scanning the deflected light beam onto the surface of the photosensitive body, Uzuki does not however explicitly disclose the correction lens among the f- θ lenses for correcting variations in the tilt of the plural reflection planes of the polygon mirror.

Regardless, it is well known in the art that the scanning lenses while performing the f- θ functions of scanning the deflected laser beam by converging the laser beam into spotlight with constant linear velocity onto the scanned surface, also serve to correct a surface tilt error generated in the polygon mirror as evidenced by Yamakawa, which teaches the scanning lenses (3, 4, 15) accomplishing f- θ characteristics with the

Art Unit: 2861

last lens (4) serving as a correction lens for correcting surface tilt of the polygon mirror (col. 5, lines 45-61).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the correcting lens among the f- θ lenses of Uzuki as taught by Yamakawa since Yamakawa teaches this to be well known in the art to include the surface-tilt correction lens so as to reduce the pitch variation in the scanning lines.

Uzuki further teaches:

- (referring to claims 7, 20) a frame (mounting base 30) having a hole (hole 31) into which the projection (positioning pin 8) is fitted, which supports the housing of the exposure device in such a manner that the housing can rotate about the projection (the mounting base 30 for mounting the optical box 10, wherein the positioning pin is fitted into the hole 31 of the mounting base 31 such that the optical box is rotated about the positioning pin 8 as shown by the arrow θ in Fig. 1);
- (referring to claims 13, 14, 23, 28) the housing is rotated about the projection (the optical box 10 being rotated about the positioning pin 8 as shown by the arrow θ in Fig. 1);
- (referring to claims 15, 17, 24) a shaping lens (collimator lens 2 to collimate the laser beam into parallel luminous flux) located between the light emitting section (laser 1) and the polygon mirror (4) (Fig. 1);

Art Unit: 2861

- (referring to claims 16, 18, 25) the light emitting section (laser 1) and the shaping lens (collimator lens 2) are formed in one unit (the laser 1 and the collimator lens 2 are enclosed in the same holding member) (Fig. 1).

Response to Arguments

5. Applicant's arguments with respect to claims 4, 7 and 9-28 have been considered but are moot in view of the new grounds of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2861

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM
PRIMARY EXAMINER

April 13, 2006